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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Holgers Eggers et al.
Serial No.	:	09/247,418
Filed	:	February 10, 1999
For	:	MULTI-PLY HEAT SEALABLE LAYER AND HERMETICALLY SEALABLE PACKAGING MATERIAL PRODUCED THEREWITH
Art Unit	:	1773
Examiner	:	K. Kruer

November 10, 2003

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANTS' BRIEF ON APPEAL PURSUANT TO 37 CFR § 1.192

SIR:

This is an appeal from the final rejection by an Examiner of Art Unit 1773.

(1) REAL PARTY IN INTEREST

The instant application is owned by Wolff Walsrode AG, record owner hereof.

(2) RELATED APPEALS AND INTERFERENCES

The undersigned is not aware of any appeals, interferences, re-examinations, infringement actions, or the like, in any related applications.

(3) STATUS OF CLAIMS

The claims pending in this application are claims 2-20, 12-24 and 26-31, and all of said claims are on appeal.

(4) STATUS OF AMENDMENTS

The last claim amendment made was that filed by fax on January 23, 2003 and said amendment was entered. A Rule 116 Response, without claim amendments, was filed on October 30, 2003.

(5) SUMMARY OF INVENTION

Each of the appealed claims relate to a novel heat-sealable composite film comprising a multi-ply heat sealable layer and a substrate.

The heat sealable layer has an outer ply (b) and, between the outer ply (b) and the substrate, also has at least one inner ply (i).

The at least one inner ply (i) has a higher melt flow rate (MFR) than the outer ply (b).

With this unique combination of an outer ply (b) and inner ply (i), with (i) having a greater melt flow rate than the outer ply (b), Appellants are able to

achieve a previously unattainable combination of elevated hot tack and good channel impermeability (page 13, lines 5-9).

The key to achieving this unique combination of properties resides in Appellants' combination of an outer heat sealing ply with an inner ply which has a higher MFR than the outer heat sealing ply (page 10, paragraph beginning at line 3).

(6) ISSUES

There are six issues, as follows:

(A) Whether claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23 are unpatentable under 35 USC 103(a) as obvious over Dobreski (US 5,334,428);

(B) Whether claims 26-29 are unpatentable under 35 USC 103(a) as obvious over Dobreski et al and further in view of Simmons (US 5,273,809);

(C) Whether claim 16 is unpatentable under 35 USC 103(a) as obvious over Dobreski;

(D) Whether claims 31, 2-10, 12, 13, 14, 17, 18, 19, 23, 26, 27 and 28 are unpatentable under 35 USC 103(a) as obvious over Paleari (US 6,110,570) in view of Hodgson (US 5,206,075).

(E) Whether claims 31, 2-11, 13, 15, 17-21, 23, 26-28 and 30 are unpatentable under 35 USC 103(a) as obvious over Chum (US 5,089,321); and

(F) Whether claim 24 is unpatentable under 35 USC 103(a) as obvious over Chum.

(7) GROUPING OF CLAIMS

For each rejection, the claims stand or fall together.

(8) ARGUMENT

A) The rejection of claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 21 under 35 USC 103(a) as obvious over Dobreski (US 5,334,428)

The Examiner acknowledges that Dobreski teaches a coextruded stretch wrap film comprising two outer layers and at least one intermediate layer.

The intermediate layer has a lower melt index than the outer layer.

The Examiner contends that, since Dobreski's film is a cling film, the film may cling to itself and, when the film clings to itself, somehow Appellants' film will be arrived at.

Dobreski is specifically concerned with a three layer coextruded film, having an intermediate layer of low melt index and two outer layers of high melt index (column 1, lines 8-13).

The films are said to be useful for the wrapping of palletized loads.

Schematically, Dobreski's film might be represented by the following layer sequence

o//i//o

where "o" represents an outer layer and "i" represents the intermediate layer. Layer "i" has a lower melt index than layers "o".

The Examiner refers to an "overwrapped" Dobreski film, and bases his argument on a sequence of layers that he thinks will be achieved by such overwrapping.

Overwrapping Dobreski's film over itself does not create a new film, since the two adjacent films are not connected to each other permanently, such as are the plies of Appellants' composite film, but can be separated relatively easily from each other. Therefore, the overwrapped film proposed by the Examiner is not comparable to Appellants' composite film.

Even if, however, as the Examiner proposes, two sheets of Dobreski's film were brought together and "clung" together, the sequence would be

o//i//o//o//i//o.

The outer "o" layer would have a higher melt index than the intermediate "i" layer.

This is the opposite of Appellants' sequence, wherein the interior layer (i) has a higher melt flow rate than the outer layer (b).

The inner "o" layers, of course, would have the same melt flow index as the outer "o" layers.

Thus, even assuming the Examiner's hypothetical example, no inner layer would have a higher melt index than the outer layer, and Appellants' claim would not be met.

The Examiner, in the face of the above explanation still contends that:

> "The two outer layers clung together (herein relied upon to read on the claimed "inner ply") would have a melt index of greater than about 2.5, and the intermediate layers (herein relied upon to read on the

claimed "outer ply") would have a melt index of 0.5-2.5".

The Examiner's explanation does not make any sense.

Specifically, the Examiner's contention that "... the intermediate layers (herein relied upon to read on the claimed "outer ply)..." is simply technically incorrect.

In the Examiner's hypothetical, the "intermediate" layer (illustrated as "i" above) will always be "intermediate" layer, and can never be "outer layer."

The outer layer of Dobreski's film, whether taken as a single film or two sheets of film "clung" to each other; will still be the high melt index layer "o".

Accordingly, Appellants' claims cannot fairly be seen as obvious over Dobreski, and the rejection of claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23 under 35 USC 103(a) as obvious over Dobreski (US 5,334,428) should now be reversed.

(B) The rejection of claims 26-29 under 35 USC 103(a) as obvious over Dobreski (US 5,334,428) in view of Simmons (US 5,273,809).

The Examiner relies on Simmons for a teaching of various substrates.

It is clear, however, that no matter what substrate the Examiner would propose to combine with Dobreski, the substrate would not overcome any of the deficiencies discussed above.

In addition, if Dobreski's film were to be combined with Simmons' "non-cling" layers, the very hypothetical combined "cling" film that the Examiner relies on with respect to Dobreski, would be destroyed.

Were Dobreski's film attached to one of Simmons' non-cling layers, clearly the outer layer would once again have a higher MFR than the intermediate layer.

Stated differently, the features the Examiner relied on in making the rejection over Dobreski above would not be present any more if Dobreski were to be combined with Simmons, as the Examiner suggests.

Respectfully, the rejection of claims 26-29 under 35 USC 103(a) as unpatentable over Dobreski as applied above in view of Simmons is technically impossible, as Dobreski cannot be applied as above and combined with Simmons at the same time. The combination cannot be applied as Dobreski alone was, as the very premise the Examiner relied upon in his rejection over Dobreski alone would no longer be present.

The rejection of claims 26-29 under 35 USC 103(a) as obvious over Dobreski as applied to claims 31, 2, 3, 6-10, 13, 15, 17, 18, 19, 20 and 23 above and further in view of Simmons (US 5,273,809) should be reversed.

(C) The rejection of claim 16 under 35 USC 103(a) as obvious over Dobreski (US 5,334,428).

The Examiner contends that it would be obvious to use a metallocene catalyst.

No catalyst, however, will ever overcome the deficiencies of Dobreski, as discussed above.

The rejection of claim 16 under 35 USC 103(a) as obvious over Dobreski should therefore be reversed.

(D) The rejection claims 31, 2-10, 12, 13, 14, 17, 18, 19, 23, 26, 27 and 28 under 35 USC 103(a) as obvious over Paleari (US 6,110,570) in view of Hodgson (US 5,206,075).

Paleari teaches a multilayer heat-shrinkable film having the structure

d//c//b//a.

Layer (b) has a fractional melt index (column 2, lines 1-8).

Layer (d) also has a fractional melt index.

Layer (a) is a heat sealable layer, but no melt index is specified.

Paleari defines "fractional melt index" as meaning a melt index of less than 1 (column 3, line 14-17).

Inner layer (c) preferably has a melt index not higher than 3.0 g/10'.

Additional layers may follow layer (d) (column 7, lines 15-20).

In a preferred embodiment, Paleari's structure comprises at least 5 layers, wherein an outer layer (e) follows layer (d) (column 7, lines 65-68).

In another embodiment, two layers (f) and (g) may follow layer (d) (column 8, lines 16-20).

Heat-sealable layer (a) can comprise the copolymers described in US 5,306,025 (Hodgson) (column 6, line 29).

In Paleari's examples, such as example 1, the heat sealable layer has a relatively higher melt index of 6 g/10 min.

Clearly, any person skilled in the art reading Paleari would understand that Paleari's outer heat sealable layer (a) has a higher melt flow rate than Paleari's inner layer (b). This is the opposite of what is claimed by Appellants!

If the sealing layer of Hodgson was used as Paleari's heat seal layer (a), such layer (a) would than have an even higher melt flow rate. Contrary to the Examiner's reading, Hodgson does not disclose a melt flow index of 0.5-7.5 g/10 min. Hodgson actually discloses a melt flow index which is 100 times higher! In the abstract to which the Examiner refers, the melt flow index is given as 0.5 dg/min to 7.5 dg/min. One dg = 10 g. Thus, Hodgson's lowest rate is 5 g/min or 50 g/10 min!

In such case, the outer heat sealable layer would have a melt flow rate which is much greater than the inner layer, taking the Paleari/Hodgson combination even further away from Appellants' film.

The Examiner comments that

> "When the film is heat sealed, the examiner takes the position that said heat seal layer (the layer with the higher melt flow index) is adjacent to a substrate."

The Examiner's "position" is not prior art, and in any case, would make absolutely no technical sense. A heat sealing layer is always an outer layer. If the heat sealing layer were adjacent to a substrate, it would lose its function as a heat sealing layer.

Neither Paleari nor any other person skilled in the art suggest, or ever would suggest, that a film be made by placing a layer sequence such as that taught by Paleari against a substrate with the heat sealing layer being placed against the substrate.

This makes no sense - the heat sealing layer must be exposed as an outer layer in order to be used for heat sealing.

Paleari teaches that any "additional" i.e., substrate layer, be attached to or substituted for layer (d), which is not a heat sealable layer.

In this regard, it is respectfully pointed out that Appellants' claims are directed to a heat-sealable composite film wherein the outer ply (of the heat sealable film) has a lower MFR than the inner ply. The hypothetical film that the Examiner would create by applying Paleari's heat sealable layer against a substrate (which no one would ever do) will not result in a heat sealable film. Since the heat sealable layer would be covered by the substrate, it would not be exposed for heat sealing, and the film would no longer be heat sealable.

In the event the Examiner, in his hypothetical, was considering a situation where the film is actually hot-sealed to a substrate, it is respectfully submitted that the result would not be a "heat sealable" film, as claimed by Appellants. Once hot sealed, it is no longer heat sealable. In addition, those skilled in the art know that during the hot sealing procedure, the properties of the film in the heat-sealed area, especially the properties of the plies being sealed to each other, are changed. During hot sealing, the various polymers of the plies being hot sealed to each other are mixed during their quasi molten status during the sealing step. This means, of course, that the MFR values of the various polymers are substantially changed because of this mixing.

Furthermore, the Examiner's conclusion that the melt flow of Paleari's preferred heat seal composition (1 g/10 min) is three times greater than the preferred melt flow of the inner layer composition (0.35 g/10 min) would seem to make Appellants point - i.e., that Paleari teaches that the outer layer has a higher

melt flow rate than the intermediate layer, whereas in Appellants' claims, the intermediate layer (i) has a higher melt flow rate than the outer heat sealable layer (b).

The Examiner also indicates, at page 5 of the Office Action of September 27, 2002 that Paleari teaches in example 1 a laminate wherein the melt flow index of the inner layer are all lower than the melt index of the heat sealable layer.

Appellants' inner plies have higher melt flow indexes than the outer heat seal layer however.

It would therefore seem that the Examiner recognizes that Paleari teaches away from Appellants' claims.

The rejection of claims 31, 2-10, 12, 13, 14, 17, 18, 19, 23, 26, 27 and 28 under 35 USC 103(a) as obvious over Paleari in view of Hodgson should accordingly be reversed.

(E) The rejection of claims 31, 2-11, 13, 15, 17-21, 23, 26-28 and 30 are unpatentable under 35 USC 103(a) as obvious over Chum (US 5,089,321).

Appellants have pointed out to the Examiner that Chum teaches that the inner layer should have a lower MFR than that of the outer layer, which would be the exact opposite of what Appellants claim.

To this the Examiner responds that "inner" and "outer" are relative terms and that Chum teaches a laminate comprising the same layers arranged in the same relative position with respect to each other.

This is not correct.

Appellants' claims are directed to a heat sealable film, comprising a multi-ply heat sealable layer and a substrate, wherein the outer ply (b) has a lower MFR than the inner ply (i), and (i) is between (b) and the substrate.

It is clear from Chum that his outer layer is A, and that this is the heat sealing layer which must always be exposed for heat sealing. Chum's "core" layer B is an inner layer, and is the layer that would be adjacent to any substrate.

Chum does not teach the same layer arranged in the same position as do Appellants because Chum's core layer has a lower MFR than the outer layer A. When applied to a substrate, A would always be the outer layer, as shown by Chum's examples.

There is absolutely nothing in Chum that would lead those skilled in the art to do anything else than arrange his heat seal layer on the outside. Chum's layer B would never be an outer layer, when applied to a substrate.

To be heat sealable, a film must have a heat sealable layer on the outside.

No person reading Chum would ever be led to Appellants novel heat sealable composite film, and the rejection of claims 31, 2-11, 13, 15, 17-21, 23, 26-28 and 30 under 35 USC 103(a) as obvious over Chum should be reversed.

(F) Whether claim 24 is unpatentable under 35 USC 103(a) as obvious over Chum.

The Examiner asserts that Chum provides for a pigment and that calcium carbonate is known in the Art as a pigment. This does not however suggest the use of calcium carbonate in Appellants' film and, more important, does not in any

way compensate for the deficiencies in the Chum reference that are pointed out above.

In this regard, the foregoing comments regarding the rejection of Claims 31, etc. over Chum apply equally well to this rejection.

Chum neither teaches nor suggests a heat sealable laminate wherein the outer ply has lower MFR than the inner ply.

The rejection of Claim 24 under 35 USC 103(a) as obvious over Chum should therefore now be reversed.

(9) CONCLUSION

Wherefore, it is submitted that the final rejection is in error and should be reversed.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Appellants request that this be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 14-1263.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess to our Deposit Account No. 14-1263.

Respectfully submitted

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I hereby certify that this correspondence is being deposited with sufficient postage with the United States Postal Services as Express Mail, Label No. EV 328768649 US in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 10, 2003.

By _____
Julie Harting
Date November 10, 2003

(10) APPENDIX

The claims on appeal read as follows:

2. The heat-sealable composite film of Claim 31 wherein the MFR of said outer ply (b) is 0.1 to 3 g/10min.

3. The heat-sealable composite film of Claim 31 wherein the MFR of said outer ply (b) is 0.5 to 2 g/10 min.

4. The heat-sealable composite film of Claim 31 wherein the MFR of said inner play (i) is at least twice the MFR of said outer ply (b).

5. The heat-sealable film of Claim 31 wherein the MFR of said inner ply (i) is at least thrice the MFR of said outer play (b).

6. The heat-sealable composite film of Claim 31 wherein the weight per area of said inner ply (i) is at least 60% of the weight per area of said multi-plied laminate (l).

7. The heat-sealable composite film of Claim 31 wherein the weight per area of said inner ply (i) is at least 70% of the weight per area of said multi-plied laminate (l).

8. The heat-sealable composite film of Claim 31 wherein said outer ply (b) has a thickness of 5 to 50 μm.

9. The heat-sealable composite film of Claim 31 wherein said outer ply (b) has a thickness of 10 to 30 μm.

10. The heat-sealable composite film of Claim 31 wherein said outer ply (b) has a thickness of 10 to 20 μm.

12. The heat-sealable composite film of Claim 31 wherein said inner play (i) includes two piles.

13. The heat-sealable composite film of Claim 31 wherein said outer ply polymeric resin comprises at least one member selected from the group consisting of ethylene/vinyl acetate copolymer, ethylene/unsaturated ester copolymer, ethylene/unsaturated carboxylic acid copolymer, salt of ethylene/unsaturated carboxylic acid copolymer, low density polyethylene, high density polyethylene, and copolymer of ethylene and α-olefin having at least 3 carbon atoms.

14. The heat-sealable composite film of claim 13 wherein said unsaturated ester comprises at least one member selected from the group consisting of butyl acrylate and ethyl acrylate.

15. The heat-sealable composite film of claim 13 wherein α-olefin of said copolymer of ethylene comprises at least one member selected from the group consisting of butane, hexane, octane and 4-methyl-1-pentene.

16. The heat-sealable composite film of Claim 15 wherein copolymer comprises the product of a reaction catalyzed by metallocene.

17. The heat-sealable composite film of Claim 31 wherein said inner ply polymeric resin comprises at least one member selected from the group consisting of ethylene/vinyl acetate copolymer, ethylene/unsaturated ester copolymer, ethylene unsaturated carboxylic acid copolymer, salt of ethylene/unsaturated carboxylic acid copolymer, low density polyethylene, high density polyethylene, and copolymer of ethylene and α-olefin having at least 3 carbon atoms.

18. The heat-sealable composite film of Claim 31 wherein said outer ply polymeric resin comprises at least one member selected from the group consisting of ethylene/vinyl acetate copolymer wherein content of vinyl acetate is at most 20% relative to the weight of said copolymer; ethylene/unsaturated carboxylic acid copolymer wherein content of carboxylic acid is at most 8% relative to the weight of said copolymer; salt of ethylene/unsaturated carboxylic acid copolymer having a content of carboxylic acid of at most 10% relative to the weight of said copolymer; low density polyethylene having a density of 0.91 to 0.935 g/cm^3; and copolymer of ethylene and α-olefin having density of 0.90 to 0.94 g/cm^3.

19. The heat-sealable composite film of Claim 31 wherein said inner ply polymeric resin comprises at least one member selected from the group consisting of: ethylene/vinyl acetate copolymer wherein content of vinyl acetate is at most 20% relative to the weight of said copolymer; ethylene/unsaturated carboxylic acid copolymer wherein content of carboxylic acid is at most 8% relative to the weight of

said copolymer; salt of ethylene/unsaturated carboxylic acid copolymer having a content of carboxylic acid of at most 10% relative to the weight of said copolymer; low density polyethylene having a density of 0.91 to 0.935 g/cm^3; and copolymer of ethylene and α-olefin having density of 0.90 to 0.94 g/cm^3.

20. The heat-sealable composite film of Claim 31 wherein said outer ply (b) comprises a copolymer of ethylene and α-olefin.

21. The heat-sealable composite film of Claim 20 wherein said copolymer further comprises at least one member selected from the group consisting of low density polyethylene and copolymer of ethylene and vinyl acetate, said member being present in an amount of up to 50% relative to the total weight of said ply (b).

22. The heat-sealable composite film of Claim 21 wherein said copolymer of ethylene and α-olefin is characterized in that it is a product of a reaction catalyzed by metallocene, and in that it has a crystalline metlting point of at most 110°C, and in that its ratio of weight average molecular weight to number average molecular weight is at most 3.

23. The heat-sealable composite film of Claim 31 wherein at least one of said inner ply (i) and said outer ply (b) include at least one of anti-blocking additives and dyes.

24. The heat-sealable composite film of Claim 31 wherein said outer ply (b) comprises 0.1 to 2% relative to the weight of said outer ply (b) of solid inorganic

particles selected from the group consisting of silicon oxide, calcium carbonate, magnesium silicate, aluminum silicate, calcium phosphate and talc.

26. The heat-sealed composite film of claim 31, wherein said substrate is selected from the group consisting of metal, cardboard, paper, paperboard, textile, non-woven fabric, plastic and composites thereof, said plastic being other than said outer ply polymer resin and said inner ply polymer resin.

27. The composite film of Claim 26 wherein said substrate is at least one member selected from the group consisting of paper, aluminum, cellulose, polypropylene, polyalkylene terephthalate, polyamide, polycarbonate, polyvinyl alcohol, EVOH, polystyrene.

28. The composite film of Claim 26 wherein substrate is in oriented form.

29. The composite film of Claim 26 wherein substrate is in unoriented form.

30. A composite film comprising the multi-plied heat-sealable layer of Claim 31 with said outer ply (b) being one outer ply of said multi-plied heat-sealable layer.

31. A heat-sealable composite film comprising a multi-ply heat-sealable layer (I) and a substrate, said multi -ply heat-sealable layer (I) consisting of:

an outer ply (b) having a melt flow rate (MFR), as determined in accordance with DIN ISO 1133 at 190°C and 2.16 kg, of at least 0.1 g/10 min., and comprising an outer ply polymeric resin; and

at least one inner ply (i), each inner ply (i) having an MFR, as determined in accordance with DIN ISO 1133 at 190°C and 2.16 kg, that is greater than the MFR of said outer ply (b), and comprising an inner ply polymeric resin, said at least one inner ply (i) being between said outer ply (b) and said substrate

wherein the weight per unit area of said inner ply (i) is at least 40% of the weight per unit area of said multi-plied laminate (I).